



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/142,449	06/28/2011	Aleksandra Popovic	2008P01565WOUS	3603

24737 7590 03/10/2017
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
465 Columbus Avenue
Suite 340
Valhalla, NY 10595

EXAMINER

JONES, HUGH M

ART UNIT	PAPER NUMBER
----------	--------------

2128

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

03/10/2017

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

marianne.fox@philips.com
debbie.henn@philips.com
patti.demichele@Philips.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ALEKSANDRA POPOVIC and KAREN IRENE TROVATO

Appeal 2016-007172
Application 13/142,449
Technology Center 2100

Before CAROLYN D. THOMAS, JEFFREY S. SMITH, and
TERRENCE W. McMILLIN, *Administrative Patent Judges*.

THOMAS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants seek our review under 35 U.S.C. § 134(a) of the Examiner twice rejecting claims 1–3, 5, 16, 23, and 25, all the claims pending in the application. We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We AFFIRM.

The present invention relates generally to “the field of planning insertion of concentric cannulas into a body,” and specifically insertion into “a human body of a medical patient” (Spec. 1).

Claim 1 is illustrative:

1. A method for configuring a set of concentric cannula, the method comprising executing operations on a data processing device, the operations comprising:

the data processing device receiving a representation of permissible tube specifications, the tube specifications including at least one indication of a diameter and at least one respective radius of curvature for each diameter;

the data processing device receiving a description of a scan of a body to be penetrated by the set of concentric cannula, the description including representations of

at least one start point relative to the scan of the body,

at least one free space and/or at least one obstacle within the scan of the body, and

at least one goal point relative to the scan of the body;

the data processing device, responsive to the received permissible tube specifications and the received description of the scan of the body, selecting a telescoping assembly of a plurality of the tubes to configure the set of concentric cannula defining at least one path through the scan of the body from the start point to the goal through free space and avoiding obstacles,

wherein the selecting of the telescoping assembly of a plurality tubes to configure the set of concentric cannula includes

a specification of at least one sequence of tubes;

at least one radius of curvature for each tube;

a respective length for each selected tube;

an angular orientation of tube with respect to previous tube; and

a net curvature of the set of concentric cannula.

Appellants appeal the following rejections:

R1. Claims 1–3, 5, 16, 23, and 25 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

R2. Claims 1–3, 5, 16, 23, and 25 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Webster et al. (WO 2007/059233 A2, May 24, 2007).

Claim Groupings

Based on Appellants’ arguments in the Appeal Brief, we will decide the appeal on the basis of claim 1, as set forth below. *See* 37 C.F.R. § 41.37(c)(1)(iv).

ANALYSIS

Rejection under § 101 of claims 1–3, 5, 16, 23, and 25

Issue 1: Did the Examiner err in finding that the claims are merely directed to an abstract idea?

Appellants contend the claims “encompass an application of the inventive premise for transforming an unassembled set of tubes into a configuration of an assembled set of tubes derived from a scan of a body to thereby improve upon the dexterity of the tubes for reducing trauma to patients during a medical procedure” (App. Br. 18).

In response, the Examiner finds that the claims are directed “to abstract ideas – an algorithm to determine a set of tubes traversing a given path in a broadly defined space region” that “includes taking into account information about diameters & their turning radii” (Ans. 5), and the claims do not require “that the set of tubes are real and/or exist and/or that they are

actually assembled and/or any assembled tubes are actually deployed” (Ans. 7). We agree with the Examiner.

We refer to, rely on, and adopt the Examiner’s findings and conclusions set forth in the Answer. Our discussions here will be limited to the following points of emphasis.

A patent may be obtained for “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” 35 U.S.C. § 101. The Supreme Court has held that this provision contains an important implicit exception: laws of nature, natural phenomena, and abstract ideas are not patentable. *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2354 (2014); *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) (“Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.”). Notwithstanding that a law of nature or an abstract idea, by itself, is not patentable, the application of these concepts may be eligible for patent protection. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293–94 (2012). In *Mayo*, the Court stated that “to transform an unpatentable law of nature into a patent-eligible *application* of such a law, one must do more than simply state the law of nature while adding the words ‘apply it.’” *Mayo*, 132 S. Ct. at 1294 (citation omitted).

In *Alice*, the Supreme Court reaffirmed the framework set forth previously in *Mayo* “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of these concepts.” *Alice*, 134 S. Ct. at 2355. The first step in the analysis is to “determine whether the claims at issue are directed to one

of those patent-ineligible concepts.” *Id.* If the claims are directed to a patent-ineligible concept, then the second step in the analysis is to consider the elements of the claim “individually and ‘as an ordered combination’” to determine whether the additional elements “‘transform the nature of the claim’ into a patent-eligible application.” *Id.* (quoting *Mayo*, 132 S. Ct. at 1289, 1297). In other words, the second step is to “search for an ‘inventive concept’ – *i.e.*, an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’” *Id.* (quoting *Mayo*, 132 S. Ct. at 1294).

As to whether the claims at issue are directed to a patent-ineligible concept, we conclude that they are. Claims 1–3, 5, 16, 23, and 25 are directed to the abstract idea of mathematical relationships and formulas. We agree with the Examiner’s finding that “the tubes and their assemblies are not required by the claim” and instead the claims recite “‘representation of a set of tubes’, ‘for configuring’, ‘to be penetrated’, ‘to be telescopically assembled to configure’, ‘for deploying’” (Ans. 7). Thus, the claimed “*selecting a telescoping assembly of a plurality of tubes to configure the set of concentric cannula*” accounting for tube specifications, radius of curvature, and “a net curvature,” is an “abstract idea” beyond the scope of § 101.

Additionally, the introduction of a generic data processing device into the claims does not alter the analysis of *Mayo* step two because claims which merely require generic computer implementations, fail to transform that abstract idea into a patent-eligible inventions.

We conclude that claims 1, 16, 23, and 25, which merely require a generic “data processing device,” “system” with “an interface” and “at least

one medium storing executable code” and “at least one processor” implementations, fail to transform the abstract idea into a patent-eligible invention.

Taking the claim elements separately, these generic computer network elements are purely conventional. These claimed generic elements are well-understood, routine, conventional elements previously known to the industry. In short, the claims do no more than require generic computer network elements to perform generic computer network functions.

Viewed as a whole, Appellants’ claims simply recite the concept of storing, sending, and receiving particular data as performed by a generic computer network. The claims do not, for example, purport to improve the storage operation of the computer network itself, e.g., an inventive data structure is used. Nor do they effect an improvement in any other technology or technical field, e.g., a computer program for performing inventive functions is stored on the generic computer storage media.

Instead, as noted by the Examiner (*see* Final Act. 5–7), the claims at issue amount to nothing significantly more applying the abstract idea of storing, sending and receiving particular data using some unspecified generic computer network elements, i.e., data in and data out. That is not enough to transform an abstract idea into a patent-eligible invention.

None of the hardware recited by the claims offers a meaningful limitation beyond generally linking the use of the data to a particular technological environment, that is, implementation via computer network. Simply appending a conventional computer network, controller, or computer-readable storage medium, specified in general terms, is not enough to transfer an abstract idea into a patent-eligible invention. *See Alice*, 134 S.

Ct. at 2357–60. These recitations are similar to the recitation of a conventional “computer” discussed in *Alice*.

Therefore, we sustain the rejection of claims 1–3, 5, 16, 23, and 25 under 35 U.S.C. § 101 as directed to non-statutory subject matter.

Rejection under § 102 over Webster

Issue 2: Did the Examiner err in finding that Webster describes “the selecting of the telescoping assembly of a plurality tubes to configure the set of concentric cannula includes... a net curvature of the set of concentric cannula,” as recited in claim 1?

Appellants contend that “Webster fails to describe or teach a net curvature of a set of concentric cannula” and instead “obviates the need for indicating a net curvature of the concentric cannula as evidenced by the omission of computation of an instantaneous equilibrium of curvature of the non-overlapping curved portion” (App. Br. 20).

We agree with the Examiner’s finding that “net curvature is merely the **resultant sum** of the total curvatures of the individual ‘tubes’ – the resultant curvature over the total path defined by the set of connected tubes” and that Webster’s “final overall configuration of tubes resulting in a curvature of the concentric cannula at transition points of overlapping tubes- as well as the curvatures in between – that correspond to a desired needle path necessarily has a ‘net curvature’” (Ans. 8).

For example, Webster discloses:

[0052] Referring again to FIG. 3, active cannula 102 has a plurality of overlap transition points T_1 - T_5 . Each *overlap transition point* T_1 - T_5 defines a boundary of a region in which the each of the outer flexible tube 110, middle flexible tube 115, and inner flexible tube 120 (or some subset of the three) have a

substantially constant degree of curvature, or lack of curvature. For example, the *region between overlap transition points T_1 - T_5* includes outer tube curved section 212, middle tube straight section 215, and inner tube straight section 220. Overlap transition point T_2 is coincident with middle tube transition point 216. Accordingly, the region between T_2 and T_3 includes outer tube curved section 212, middle tube curved section 217, and inner tube straight section 220.

[0053] *Each region bounded by at least one of overlap transition points T_1 - T_5 has a curvature that is a function of the curvatures and flexibilities of each of outer flexible tube 110, middle flexible tube 115, and outer flexible tube 120, as well as the resistance of the surrounding tissue medium. One will note that some regions have only middle flexible tube 115 and inner flexible tube 120. In this case, the curvature of that region is a function of the curvature of those two tubes within the region. In the simplest case, the curvature of the region from T_5 to end effector 125 is a function of the curvature of inner flexible tube 120 and the resistance of the surrounding tissue medium.*

[0066] *In computing a final configuration that conforms to the path, the software divides active cannula 102 into a set of regions defined by overlap transition points T_1 - T_5 . In doing so, the software may select an initial set of translational positions and rotational orientations for each of outer flexible tube 110, middle flexible tube 115. The locations of overlap transition points T_1 - T_5 depends on the overlap of the three flexible tubes. Then for each region bounded by overlap transition points T_1 - T_5 , the software computes the instantaneous equilibrium curvature.*

(Webster ¶¶ 52–53, 66, emphasis added). In other words, Webster describes that a path is calculated and the curvature for entire path, including the transition points and the sections between the transition points, is calculated.

Appellants do not provide persuasive evidence or argument that Webster's calculation of an instantaneous curvature for a path does not describe an instantaneous *net* curvature. Thus, we agree with the Examiner's finding that Webster describes "the selecting of the telescoping

assembly of a plurality tubes to configure the set of concentric cannula includes... a net curvature of the set of concentric cannula,” as recited in claim 1.

For at least these reasons, we are unpersuaded the Examiner erred. Accordingly, the Examiner’s § 102 rejection independent claims 1, 16, 23, and 25, as well as dependent claims 2, 3, and 5, not separately argued, is sustained.

DECISION

We affirm the Examiner’s § 101 rejection R1.

We affirm the Examiner’s § 102 rejection R2.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED